

Figure 7 is a schematic circuit diagram for node provision using a broadband transmission line transformer, and Figure 7A shows an alternative;

Figure 8 shows outline diagrams for transformers using coaxial or twisted pair cable;

Figure 9 shows various detail of a transmission line transformer;

Figure 10 is a schematic circuit diagram for node provision using P-channel mosfets;

Figure 11 is a schematic diagram for reflection signal generation using bipolar transistors;

Figure 12 is a schematic diagram for reflection signal generation using gallium arsenide photoelectric components;

Figure 13 indicates outline of a complex interconnection network;

Figure 14 is a schematic diagram for node provision allowing two-way communication;

Figure 15 is a schematic circuit diagram for routing provision, and Figures 15A, B concern reflection/switching;

Figure 16 is a block circuit diagram for extension to time domain reflectometry;

Figure 17 shows outline for a transmission line memory function in dealing with spurious signal effects; and

Figure 18 shows outline for a microstrip transmission line.

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The virtual hybrid network serves a similar purpose to transformer hybrid couplers in early telephony, i.e., 4-wire to 2-wire conversion, specifically herein to separate first signalling as transmitted by the master from second signalling by the reflection signals coming back to the master 11 according to deliberate reflection action at the nodes. In addition, associated differential amplifier 481 will have output 482 corresponding to difference in voltage between its inputs 483 and 484. Resistors 485 and 486 have the same value as resistor 45 which matches the transmission line impedance, and will result in the same 2:1 divider action at differential amplifier inputs 483, 484. In absence of any reflection signals, the differential amplifier 481 would have inputs of equal voltage and phase, thus give zero output. However, whatever reflection signal component arrives back at the master from the transmission line will increase or decrease voltage on the line 484 compared with the voltage on the line 483 from between the resistors 485, 486 and output 482 from the